for industrial applications, low temperature physics and superconductivity, etc.

Department of Space-Chandrayaan (India's first scientific mission to moon), ASTROSAT (Multi-wavelength Indian X-ray astronomy satellite), Radar Imaging Satellite (RISAT), Advanced Meteorological Satellite, GSLV Mk III and an integrated programme on reusable launch vehicles.

**International Tsunami warning system**

406. DR. AKHILESH DAS: Will the MINISTER OF OCEAN DEVELOPMENT be pleased to state:

(a) whether Government have decided to make India Part of an international warning system designed to warn the coastal communities of sea floor earthquake rock disturbances such as Tsunami;

(b) if so, the details of the project-proposal; and

(c) the steps taken and being taken in that direction?

THE MINISTER OF STATE OF THE DEPARTMENT OF OCEAN DEVELOPMENT (SHRI KAPIL SIBAL): (a) No Sir. No international Tsunami warning system exists presently in the Indian Ocean.

(b) Does not arise.

(c) Efforts are being initiated to install an Indian Tsunami forecasting and warning system for detecting potential Tsunami waves that may be generated in the Indian Ocean.

**Equipments to predict earthquakes**

407. SHRI N. PREMCHANDRAN: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether Government consider to install sophisticated equipment to predict the disasters such as earthquake etc. in the sea to avoid future Tsunami disaster;

(b) the reaction of Government thereto; and

(c) whether Government would consider to implement integrated coastal zone management by connecting all the coastal areas in the country to avoid future disasters?

THE MINISTER OF STATE OF THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI KAPIL SIBAL): (a) Yes, Sir. The Government is considering installation of Bottom Pressue Recorders at a depth of approximately 6 km in the ocean and other sophisticated software to provide an early Tsunami warning system for Tsunamis of different magnitude. Scientific knowledge does not allow prediction of Earthquake but can provide forewarning after the earthquake has occurred for a possible Tsunami.

(b) The Department of Science & Technology (DST) In association with the Department of Ocean Development (DoD), Department of Space (DoS) and Council of Scientific and Industrial Research (CSIR) had organized a Brain storming session during January 21-22, 2004 at Delhi to discuss the various issues related to Tsunami. Based on the discussions, a proposal has been formulated addressed to Tsunami related issues, which includes strengthening of seismological network, deployment of Ocean based sensors, data buoys, tide gauges, communincation links, R&D and public awareness. DST and DoD are the lead agencies in this effort.

(c) Information is being collected, same will be laid on the Table of the House.

**Regional Tsunami warning system**

408. SHRI B.K. HARIPRASAD: Will the MINISTER OF SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether UNESCO has planned to establish a regional Tsunami warning system for Indian ocean region, to be in the place by June, 2006;

(b) whether the US, Japan, Australia and Germany are keep to utilize their technology and expertise in the Indian ocean warning system;

(c) whether India and Thailand want to establish their own Tsunami warning systems; and

(d) if so, the steps being taken to avoid unnecessary and costly duplication of efforts by India?